

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEFFREY DAVID BIRDSLEY, ROSALINDA M. RING,
and RAMA R. GORUGANTHU

Appeal No. 2001-1451
Application No. 09/166,656

ON BRIEF

Before HAIRSTON, DIXON, and GROSS, ***Administrative Patent Judges.***
GROSS, ***Administrative Patent Judge.***

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 23, which are all of the claims pending in this application.

Appellants' invention relates to an integrated circuit structure with a probe extending from the back surface of a device substrate and terminating at an active region on the device substrate. Claim 1 is illustrative of the claimed invention, and it reads as follows:

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1. An integrated circuit structure in a device package, comprising:

a package substrate including a first set of bonding pads on a first surface and a second set of bonding pads on a second surface;

a device substrate having an exposed back surface, a front surface, and a circuit interconnect layer disposed near the front surface and having a plurality of electronic components formed therein and a plurality of input/output pads connected to selected ones of the components and to respective ones of the second set of bonding pads of the package substrate;

an active region disposed in the device substrate between the interconnect layer and the back surface; and

an electrically conductive probe extending from the back surface of the device substrate to the active region and terminating at the active region, the probe including a signal-coupling tip adapted to electrically couple to the active region.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Filippazzi et al. (Filippazzi)	3,787,252	Jan. 22, 1974
Chatterjee	4,889,832	Dec. 26, 1989
Kazama	5,291,129	Mar. 01, 1994
Gaul et al. (Gaul)	5,807,783	Sep. 15, 1998
		(filed Oct. 07, 1996)

Appellants' admitted prior art at pages 1-5 of the specification and Figure 1 (AAPA)

Claims 1 and 2 stand rejected under 35 U.S.C. § 103 as being unpatentable over Filippazzi in view of AAPA.

Claims 3 through 17 and 19 through 23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Filippazzi in view of AAPA and Chatterjee.

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Claims 1 through 17 and 19 through 23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gaul in view of AAPA.

Claim 18 stands rejected under 35 U.S.C. § 103 as being unpatentable over Filippazzi or Gaul in view of AAPA and Kazama.

We note that the rejection of claims 1 through 18 under 35 U.S.C. § 112, first paragraph, has not been repeated in the Answer and is thus considered to be withdrawn.

Reference is made to the Examiner's Answer (Paper No. 23, mailed January 3, 2001) for the examiner's complete reasoning in support of the rejections, and to appellants' Amended Brief (Paper No. 24, filed February 12, 2001) and Reply Brief (Paper No. 25, filed February 12, 2001) for appellants' arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will reverse the obviousness rejections of claims 1 through 23.

The examiner asserts (Answer, page 4) that Filippazzi discloses "an electrically conductive probe 3 extending from the back surface of the substrate to the active region and terminating at the active region (column 3, lines 47-49)."

Appellants argue (Brief, page 5) that the probe in Filippazzi is connected to active region 11 or 12 through conductive strip 7 and does not terminate at the active region. The examiner responds (Answer, pages 12-13), "The fact that the probe is electrically coupled to layer 7 does not mean that the probe is not connected to the active region." Further, the examiner states that "[p]robe 3 terminates at layer 6, which is electrically connected to layer 2 and interconnect layer 7. Therefore, the probe makes an electrical contact with the active regions."

It is clear from the examiner's remarks that he has disregarded the terminology in the claims that the probe extends from the back surface of the device substrate and "terminat[es] at the active region." The phrase "terminates at" is more specific than the phrase "connects to." Although a probe which terminates at an active region generally electrically connects to the active region, it is not true that a probe which is electrically connected to an active region generally terminates at the active region. We agree that the probe of Filippazzi is electrically connected to active region 11 or 12. However, the probe does not terminate at active region 11 or 12. Instead the probe terminates at layer 7. Since AAPA fails to remedy the

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shortcomings of Filippazzi, we cannot sustain the rejection of claims 1 and 2.

For claims 3 through 17 and 19 through 23, the examiner (Answer, pages 5-6) adds Chatterjee to the basic combination of Filippazzi and AAPA to show source and drain regions. The examiner contends (Answer, page 6) that "Chatterjee explicitly teaches a probe 144 connected to source/drain 98 active regions." The examiner concludes (Answer, page 6) that it would have been obvious to connect the probes of Filippazzi "to active regions of a MOSFET transistor, namely the source/drain regions, in order to test the active regions of a MOSFET transistor."

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner, in accordance with **Graham v. John Deere Co.**, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966), to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. **Uniroyal, Inc. v. Rudkin-Wiley**, 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), **cert. denied**, 488 U.S. 825 (1988). These showings by the examiner are an essential part of complying with

the burden of presenting a **prima facie** case of obviousness. **Note** **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Furthermore, "[t]hat knowledge can not come from the applicant's invention itself." **Oetiker**, 977 F.2d at 1447, 24 USPQ2d at 1446.

In the instant case, the examiner has pointed to no teaching, suggestion, or implication in the prior art, and we find none, to modify Filippazzi such that the probe terminates at the active region. Furthermore, Chatterjee alone fails to satisfy the claim language as the probe fails to extend from the back surface to the active region wherein the interconnect layer is disposed near the front surface. Instead, the interconnect layer is between the probe and the back surface. Therefore, we cannot sustain the rejection of claims 3 through 17 and 19 through 23.

The examiner also rejects claims 1 through 17 and 19 through 23 over Gaul in view of AAPA. The examiner asserts that the probe terminates at the active region because "[t]he broad recitation of the claim does not require the probe to contact the bottom part of the source/drain regions." Similar to Filippazzi the probe is connected to the active regions via an interconnect layer 30, but does not terminate at the source or drain. Again

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the examiner has disregarded the language of the claims. The claim language is not as broad as averred by the examiner. The claims specifically recite that the probe must terminate at the active layer, which requires the probe to contact the source/drain region. AAPA fails to remedy the deficiency of Gaul. Consequently, we cannot sustain the rejection of claims 1 through 17 and 19 through 23.

Regarding claim 18, the examiner adds Kazama to AAPA and Filippazzi or Gaul. Since Kazama fails to overcome the shortcomings of both Filippazzi and Gaul, we cannot sustain the rejection of claim 18.

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CONCLUSION

The decision of the examiner rejecting claims 1 through 23
under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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